

Amendments to the Drawings:

Replacement drawing sheets for Figures 1 and 3 are provided herewith. Figure 1 has been amended to correct the spelling of the word “calender” and Figure 3 has been amended to correct the spelling of the word “galvanostatic.” No new matter has been added.

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow. Claims 1-25 have been canceled without prejudice or disclaimer, and new Claims 26-69 have been added. Figures 1 and 3 and various paragraphs in the specification have also been amended to correct typographical errors therein. No new matter has been added. Accordingly, Claims 26-69 will be pending in the present application upon entry of this Amendment and Reply.

Drawings

On page 2 of the Office Action, the drawings were objected to because of minor spelling errors (e.g., “Callender” in Figure 1 and “Gavlanostatic” in Figure 3). Corrected drawings have been provided herewith.

Specification

On page 2 of the Office Action, page 3, line 11 of the disclosure was objected to because of certain informalities. Appropriate correction has been made. Applicants have also amended the specification to correct various other typographical/printing errors made therein.

Claim Objections

On page 3 of the Office Action, Claim 1 was objected to by the Examiner. By this Amendment and Reply, Claim 1 has been canceled without prejudice or disclaimer, and the objection is therefore moot. The objection is not believed to apply to the new claims as presented herein.

Claim Rejections – 35 U.S.C. § 112

On page 3 of the Office Action, Claims 9, 12-15, and 25 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. By this Amendment and Reply, Claims 9, 12-15, and 25 have been canceled without prejudice or disclaimer, and the

rejections under 35 U.S.C. § 112 are therefore moot. The rejections under 35 U.S.C. § 112 are not believed to apply to the new claims as presented herein.

Claim Rejections – 35 U.S.C. § 101

On page 4 of the Office Action, Claim 25 was rejected under 35 U.S.C. § 101. By this Amendment and Reply, Claim 25 has been canceled without prejudice or disclaimer, and the rejection is therefore moot. The rejection under 35 U.S.C. § 101 is not believed to apply to the new claims as presented herein.

Double Patenting

On pages 22-42 of the Office Action, various claims were provisionally rejected on the ground of obviousness-type double patenting. Specifically:

- Claims 1, 9, 12, 18-19, 23, and 25 were rejected in view of Claim 15 of copending U.S. Patent Application No. 11/634,379;
- Claims 2-3 were rejected over Claim 1 of copending U.S. Patent Application No. 11/634,379 in view of U.S. Patent No. 5,571,640 to Takeuchi et al.;
- Claims 4, 6 17, and 21-22 were rejected over Claim 1 of copending U.S. Patent Application No. 11/634,379 in view of U.S. Patent No. 4,336,217 to Sauer;
- Claim 5 was rejected over Claim 1 of copending U.S. Patent Application No. 11/634,379 in view of Sauer and further in view of U.S. Patent No. 4,581,116 to Plowman;
- Claims 7-8 were rejected over Claim 1 of copending U.S. Patent Application No. 11/634,379 in view of U.S. Patent No. 5,651,813 to Santilli et al.;
- Claim 10 was rejected over Claim 1 of copending U.S. Patent Application No. 11/634,379 in view of U.S. Patent Application Publication No. 20002/0015879 to Gascoyne et al.;
- Claims 11 and 13 were rejected over Claim 1 of copending U.S. Patent Application No. 11/634,379 in view of U.S. Patent No. 6,054,230 to Kato;
- Claims 14-15 and 24 were rejected over Claim 1 of copending U.S. Patent Application No. 11/634,379 in view of U.S. Patent No. 3,854,994 to Binder et al. in view of U.S. Patent No. 4,440,617 to Solomon; and

- Claim 16 was rejected over Claim 1 of copending U.S. Patent Application No. 11/634,379 in view of Solomon.

By this Amendment and Reply, Claims 1-25 have been canceled without prejudice or disclaimer. Should the Examiner still believe that double patenting rejections are appropriate with respect to the new claims, Applicant respectfully requests that the double patenting rejections be held in abeyance until allowable independent claims are indicated by the Examiner in the present Application (since a timely filed terminal disclaimer would overcome the rejection such that further consideration of the claims on that rejection should not be necessary). (See 37 C.F.R. § 1.111(b).)

Claim Rejections – 35 U.S.C. § 103

The claims of the present application were rejected under 35 U.S.C. § 103(a) over various combinations of references. Specifically:

- On page 5 of the Office Action, Claims 1, 4-6, 9, 12, 17-23, and 25 were rejected over U.S. Patent No. 4,581,116 to Plowman et al. in view of U.S. Patent No. 4,336,217 to Sauer;
- On page 11, Claims 2-3 were rejected over Plowman et al. in view of Sauer and further in view of U.S. Patent No. 5,571,640 to Takeuchi et al.;
- On page 12, Claims 7-8 were rejected over Plowman et al. in view of Sauer and further in view of U.S. Patent No. 5,651,813 to Santilli et al.;
- On page 14, Claim 10 was rejected over Plowman et al. in view of Sauer and further in view of U.S. Patent Application Publication No. 2002/0015879 to Gascoyne et al.;
- On page 16, Claims 11 and 13 were rejected over Plowman et al. in view of Sauer and further in view of U.S. Patent No. 6,054,230 to Kato;
- On page 17, Claims 14-15 and 24 were rejected over Plowman et al. in view of Sauer and further in view of U.S. Patent No. 3,854,994 to Binder et al. and U.S. Patent No. 4,440,617 to Solomon.; and
- On page 21, Claim 16 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Plowman et al. in view of Sauer and further in view of Solomon.

As described above, Claims 1-25 have been canceled without prejudice or disclaimer. To the extent that the rejections above are believed to apply to the new claims presented herein, Applicants respectfully traverse such rejections.

New independent Claim 26 recites, among other elements, “forming an active layer by agglomerating a first powder mixture with PTFE particles in a dry form to produce a first dry agglomerate, adding a first organic solvent to the first dry agglomerate to produce a first paste, and calendering the first paste to form the active layer” and “forming a gas diffusion layer by agglomerating a second powder mixture with PTFE particles in a dry form to produce a second dry agglomerate, adding a second organic solvent to the second dry agglomerate to produce a second paste, and calendering the second paste to form the gas diffusion layer.”

New independent Claim 45 recites, among other elements, “forming an active layer and a separate gas diffusion layer using separate processes that each comprise agglomerating a powder mixture with PTFE particles in a dry form to produce a dry agglomerate, adding an organic solvent to the dry agglomerate to produce a paste, and calendering the paste.”

New independent Claim 61 recites, among other elements, a “gas diffusion layer” and an “active layer” that are “each formed from a paste created from a mixture of a powder mixture and PTFE particles” and are “manufactured in separate processes that each comprise agglomerating a powder mixture with PTFE particles in a dry form to produce a dry agglomerate, adding an organic solvent to the dry agglomerate to produce a paste, and calendering the paste.”

None of the cited references, whether taken alone or in combination, disclose, teach, or suggest forming a gas diffusion electrode where both the active layer and a separate gas diffusion layer are formed using processes that involve agglomerating a powder mixture with PTFE particles in a dry form to produce a dry agglomerate, adding an organic solvent to the dry agglomerate to produce a paste, and calendering the paste.

For example, in Plowman et al., an active layer in the form of a “thin sheet of electrode material” is laminated to a “current distributor” and a “wetproofing, or backing layer of a

hydrophobic (halocarbon) polymer, i.e., polytetrafluoroethylene, which is rendered porous so as to allow passage of the gas, i.e., air or oxygen, into the part of the electrode in contact with the electrolyte” (see column 6, lines 30-37). The Examiner has analogized this “backing layer” to the “gas diffusion layer” recited in the claims of the present application. Plowman et al. does not disclose, teach, or suggest that the “backing layer” described therein is formed by agglomerating a powder mixture with PTFE particles in a dry form to produce a dry agglomerate, adding an organic solvent to the dry agglomerate to produce a paste, and calendering the paste.

The other cited references (Sauer, Takeuchi et al., Santilli et al., Gascoyne et al., Kato, and Soloman) do not cure the deficiencies of Plowman et al. and Sauer, since none of such references, whether taken alone or in combination with Plowman et al., disclose, teach, or suggest forming both an active layer and a gas diffusion layer in separate processes that each involve agglomerating a powder mixture with PTFE particles in a dry form to produce a dry agglomerate, adding an organic solvent to the dry agglomerate to produce a paste, and calendering the paste.

Because the combinations of elements recited in independent Claims 26, 45, and 61 are not disclosed, taught, or suggested by Plowman, alone or in combination with Sauer, Takeuchi et al., Santilli et al., Gascoyne et al., Kato, and/or Soloman, such claims (as well as their associated dependent claims) are believed to be patentable. Consideration and allowance of all pending Claims 26-69 is therefore respectfully requested.

* * *

It is submitted that each outstanding objection and rejection to the Application has been overcome, and that the Application is in a condition for allowance. Applicants request consideration and allowance of all pending claims.

It should also be noted that although arguments have been presented with respect to certain claims herein, the recited subject matter as well as various other subject matter and/or combinations of subject matter may be patentable for other reasons. Further, the failure to

address any statement by the Examiner herein should not be interpreted as acquiescence or agreement with such statement. Applicants expressly reserve the right to set forth additional and/or alternative reasons for patentability and/or allowance with the present Application or in any other future proceeding, and to rebut any statement presented by the Examiner in this or other papers during prosecution of the present Application.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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